DERWENT-ACC-NO: 1993-339605

DERWENT-WEEK: 199343

TITLE: Nematocidal agent - contg. testa of peanuts, esp.
Arachis sp. prepd. from raw or roasted testa

PATENT-ASSIGNEE: SOLAR JAPAN KK[SOLAN]

PRIORITY-DATA: 1992JP-0045864 (March 4, 1992)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 05246816 A	September 24, 1993	N/A	005	A01N 065/00

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO	APPL-DATE
JP 05246816A	N/A	1992JP-0045864	March 4, 1992

INT-CL (IPC): A01N065/00

ABSTRACTED-PUB-NO: JP 05246816A

BASIC-ABSTRACT:

A nematocidal agent contains effective ingredient of testa of peanuts, partic.
Arachis sp. prepd. from raw or roasted testa and extract with water, hot water
or hydrophilic organic solvent, opt. in forms of aq. soln., mixed, liq., solid
or powder. Also claimed is an insecticidal method using the agent.

Raw or roasted testa of peanuts, partic. Arachis sp. are extracted with water,
hot water or an organic solvent and the extract is adsorbed in a suitable
carrier, or the extract is dispersed in soil.

USE/ADVANTAGE - Safe and effective nematocidal agent without environmental

pollution. The agent is obtd. from waste of peanuts at low cost.

In an example, in 100ml of water, 5g of roasted **testa of peanuts** was placed and
extracted overnight. 3Ml of the 2- and 10-times diluted extract was placed in
a container together with about 50 nematodes and allowed to stand for 72 hours.
80% Or over and 50% or over of nematodes were dead after 72 hours, respectively.

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS: NEMATODE AGENT CONTAIN PEANUT SPECIES PREPARATION RAW ROAST

DERWENT-CLASS: C05

CPI-CODES: C04-A07F2; C12-B02;

CHEMICAL-CODES:
Chemical Indexing M1 *01*
Fragmentation Code
M423 M781 M903 P002 P320 P341 V400 V406

SECONDARY-ACC-NO:
CPI Secondary Accession Numbers: C1993-150536

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 05-246816

(43)Date of publication of application : 24.09.1993

(51)Int.Cl. A01N 65/00

(21)Application number : 04-045864

(22)Date of filing : 04.03.1992

(71)Applicant : SOLAR JAPAN KK

(72)Inventor : MATSUURA AKIHISA
HIRAMATSU MIKIHIRO
IINUMA MUNEKAZU

(54) NEMATOCIDE AND METHOD FOR DESTROYING NEMATODE

(57)Abstract:

PURPOSE: To obtain a nematocide showing no bad influence on plants, not destroying an ecosystem, safely usable, having no harm on crops, comprising seed coat of peanut or its extract with water, hot water or a hydrophilic organic solvent as an active ingredient.

CONSTITUTION: A nematocide comprises seed coat of peanut which has been treated as waste and readily and inexpensively obtainable or its extract with water, hot water or a hydrophilic organic solvent (e.g. methanol, ethyl acetate or acetone) as an active ingredient and is applied to plants causing damages by nematodes. The seed coat of peanut is preferably ground. Advantageously, the seed coat of peanut waste is effectively utilized.

LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

(19)日本国特許庁（ＪＰ）　(12)**公開特許公報（Ａ）**　(11)特許出願公開番号

特開平5－246816

(43)公開日　平成５年(1993)９月24日

(51)Int.Cl.[5]	識別記号	庁内整理番号	ＦＩ	技術表示箇所
Ａ０１Ｎ　65/00		Ｚ　7106－4Ｈ		

審査請求　未請求　請求項の数７(全　５　頁)

(21)出願番号　特願平4－45864

(22)出願日　平成４年(1992)３月４日

(71)出願人　592032670
ソーラージャパン株式会社
大阪府大阪市中央区本町橋１番30号
(72)発明者　松浦　明久
石川県小松市平面町へ115－１　株式会社アラヤ内
(72)発明者　平松　幹裕
石川県小松市平面町へ115－１　株式会社アラヤ内
(72)発明者　飯沼　宗和
岐阜県岐阜市宇佐４丁目３番７号
(74)代理人　弁理士　小谷　照海　(外１名)

(54)【発明の名称】　殺線虫剤及び殺線虫方法

(57)【要約】
【目的】植物への悪影響がなく、土壌中の生態系が破壊されず、安全に使用することができ、収穫作物の摂食についても安全である。
【構成】落花生の種皮、該種皮の水抽出物、該種皮の熱水抽出物、該種皮の親水性有機溶剤抽出物のいずれか１以上を有効成分とする。

1

【特許請求の範囲】
【請求項１】落花生の種皮を有効成分とする殺線虫剤。
【請求項２】落花生の種皮の水抽出物、熱水抽出物、該種皮の親水性有機溶剤抽出物のいずれか１以上を有効成分とする殺線虫剤。
【請求項３】落花生の種皮がアラキス属に属する請求項１又は２記載の殺線虫剤。
【請求項４】落花生の種皮が水、熱水への浸漬、焙煎又は焙焼により得られた請求項１、２又は３記載の殺線虫剤。
【請求項５】落花生の種皮が生種皮である請求項１、２または３記載の殺線虫剤。
【請求項６】請求項１、２、３、４又は５記載の殺線虫剤を、含水、吸着、混合、液体、固体、粉体のいずれか１以上で製剤化した農園芸物用資材。
【請求項７】請求項６記載の農園芸物用資材を用いて行なう殺線虫方法。
【発明の詳細な説明】
【０００１】
【産業上の利用分野】本発明は、線虫による被害の発生する植物に施用する殺線虫剤及び殺線虫方法に関する。
【０００２】
【従来の技術】殺線虫剤の従来技術は次の２つに大別できる。すなわち一つは農薬を使用する方法であり、クロルピクリン、ＥＤＢなどによる燻蒸法である。他の一つは対抗植物の輪作により被害を軽減する方法である（農業技術大系　土壌肥料編　２２２頁）。以上２つの方法の他は線虫のみを対象とするのではなく、土壌中の各種生物への影響、物理性などの改善効果を狙ったものであり、例えば堆肥、鶏糞の利用がある（近岡、竹沢：「関東東山病害虫研究会年報」第２５集１２７頁１９７８年、「植物防疫」第４４巻５３５頁１９９０年）。又実施されていないが、線虫に寄生し死滅せしめる微生物を利用する方法が提案されている（特開昭６２－１９５１５、特開昭６２－２９５０６）。
【０００３】
【発明が解決しようとする課題】しかし農薬を用いる従来技術は、土壌中の生物に対しほぼ無差別に毒性を発揮するもので効果は強力であるが、生態系への悪影響が大きく、作業者にとっても危険な方法であり、ついには地球環境の破壊につながる欠点がある。これに対し輪作による方法は、線虫と農作物などの植物の生態を考慮した優れた方法であるが、輪作作物の種類に限定を要したり、効果の発現が間接的であり有効性に疑問のあるものが多い。また忌避植物を輪作する方法に用いる植物は食用とならぬものが多い。このようにいずれも満足なものがないのが現状である。
【０００４】この発明の目的は、植物への悪影響がなく、土壌中の生態系が破壊されず、安全に使用でき、収穫作物の摂食についても安全である殺線虫剤を提供する

2

点にある。
【０００５】
【課題を解決するための手段】前述のごとき現状から、満足な殺線虫剤を開発するために、殺線虫力を持つ安全な作物を探索したところ、落花生が好適な殺線虫剤となり得ることを見出だした。なかでもその種皮に殺線虫力のある成分が存在するを見出だした。
【０００６】すなわち落花生の外殻（果皮）、種皮、種皮を剥した種子及びこれらの水抽出物をそれぞれ土壌線虫へ接触させたところ、外殻及び種子には認められなかった強力な殺線虫力が、種皮及びその水抽出物には存在することが認められた。
【０００７】また更に検討を加えると、種皮の熱水抽出物にも殺線虫力があり、この抽出物は熱に安定な成分であることが判った。またｎ－ヘキサンなど非水溶性溶剤で抽出してみたところ、その抽出物には殺線虫力はほとんどなかったが、親水性溶剤であるメタノール、酢酸エチル、アセトンなどでは殺線虫力が現れ、親水性溶剤の抽出物でも可能であることを見出だした。
【０００８】この発明は落花生の種皮を有効成分とする殺線虫剤である。また落花生の種皮の水抽出物、熱水抽出物、該種皮の親水性有機溶剤抽出物のいずれか１以上を有効成分とする殺線虫剤である。
【０００９】本発明に用いられるアラキス（Arachis ）属に属する植物は世界各地で生育する落花生の栽培種を全て含む。落花生の種皮は落花生の種子の表面を被覆している極めて薄い皮膜状の組織をいい、一般に成熟すると褐色を呈している。この種皮を得るには、種皮と種子は密着しているため両者を分離しなければならない。
【００１０】種皮は生種皮でもよいが、焙煎や焙焼、または水や熱水に浸漬して集めることができ、特に限定されるものではない。ただ水、熱水への浸漬、焙煎又は焙焼により種皮は容易に密着をなくすることができ、更に僅かに種皮に力を加えるか、または捩じるなどすると容易に分離することができる点で好ましい。なお焙煎や焙焼する方法では、加熱による有効成分の失活はない。水または熱水に浸漬する方法では、水や熱水中にも有効成分が移行する。浸漬液をそのまま又は濃縮乾燥するなどしたものにも有効成分は失活しないで存在する。
【００１１】落花生は種皮をつけたままで食用として差し障りのない品種もあるが、大部分は種子のみが食用とされる。種皮は廃棄物として処理されており有用なものとして取り扱われていない現状にある。従って、本発明の殺線虫剤を製造する出発原料として容易に入手できる。
【００１２】落花生種皮や有効成分を含有する抽出液は、そのまま畑などに施用してもよいが、固体ないし液体など施用が容易な形態に整形するなど加工して利用するのが望ましい。なお落花生の種皮は、種皮自体を用いることもできるが、この場合は粉砕等することが望まし

い。また種皮自体、種皮の水抽出物、熱水抽出物、該種皮の親水性有機溶剤抽出物のいずれか１以上を有効成分とすればよく、単独又はこれらを組み合わせても用いることができる。またこれらの殺線虫剤は他の薬剤と混合することもでき、また含水、吸着、混合、液体、固体、粉体のいずれか１以上の方法で製剤化して、畑作、水稲、園芸、ゴルフ場、牧場、林業用等の農園芸物用資材として使用することもできる。

【００１３】殺線虫方法としてはこの農園芸物用資材を用いて行なう殺線虫方法が実際面で好適であるが特に限定されない。ただ現実には土壌中に埋設したり、土壌の上から散水又は散布するなどの方法で行なうことが望ましい。

【００１４】なお本成分を使用しても細菌、かび、酵母、放線菌等に対し死滅する効果はなく、ゾウリムシなどの微生物にも殺滅する効果はなかった。線虫のある種のものに対してのみ殺滅効果が認められた。

【００１５】

【作用】この発明は落花生の種皮又はその水、熱水、親水性有機溶剤の抽出物を有効成分とする殺線虫剤であるので、植物への悪影響がなく、土壌中の生態系が破壊されず、安全に使用でき、収穫作物の摂食についても安全である。また種皮は廃棄物として処理されているため、廃棄物の有効利用の点でも好ましい。

【００１６】

【実施例】

［実施例１］収穫された千葉産の落花生を天日乾燥し、その種皮及び焙焼種皮を有効成分とする殺線虫剤を得た。なお比較のため同じ落花生から外殻及び種子を用意した。これらについて福井県丸岡の大豆畑の土壌からベールマン法により集めた線虫に対して殺線虫効果を試験した。

【００１７】まず水２ｍｌ中にこの線虫を８０匹、生種皮（種子１／２個分）を加えると、１時間後から死亡が始まり１６時間後には全部死亡した。焙焼種皮を用いて同様に試みたところ同じ結果となった。次に１ｍｌの水へ６０匹入れ、種皮を前記よりも小さくして５×５ｍｍのものを一片入れ、生と焙焼の両試料で試験した。３０分後には両試料共に試料の近傍の線虫は死亡した。４日後には焙焼試料の方は全部死亡し、生試料の方は若干生

きているものが残っていたが大半は死亡した。なお落花生の生の外殻（果皮）及び種子については殺線虫効果は認められなかった。またいずれの試験においても線虫懸濁液に混在する多数のゾウリムシは死亡しなかった。

【００１８】［実施例２］落花生種子を焙煎し放冷後種皮を種子から剥離し、種皮５ｇを集めた。水１００ｍｌへ浸漬した後、種皮を除いた液を得た。

【００１９】試験用の線虫は次のようにして集めた。すなわち、静岡県のトマト畑でネコブセンチュウ被害の特に著しい畑へ行き、ネコブ発生トマトの根の周辺土壌を採取しネコブセンチュウ密度の大きい試験土壌とした。

【００２０】上記の落花生の水抽出物３ｍｌを試験土壌２０ｇへ加え、混合し、１カ月間室温に放置した。対照は上記抽出物を水３ｍｌにかえて同様に行った。

【００２１】効果の判定は、試験区と対照区の土壌中の線虫をベールマン法により集め、水で稀釈し、一定量をとり実体顕微鏡で観察した。ネコブセンチュウだけを算え、両区のネコブセンチュウ数を比較した。線虫数は平均値と標準偏差を示した。

【００２２】結果は、土壌２０ｇの線虫数は対照区１９７５±３７０、試験区は５３８±１９９であった。すなわち、落花生の水抽出物を加えた試験区のネコブセンチュウ数は対照区の約２７％に減少した。

【００２３】［実施例３］試験液は次のようにして調製した。すなわち、実施例２に使用した落花生焙煎種皮５ｇを水１００ｍｌに浸漬し、一昼夜室温に静置した後、沪紙で沪過して種皮を除いた水抽出物を原液として用いた。

【００２４】線虫は大根の茎及び根を水洗いした後、切り刻んで一昼夜蒸留水に浸し、大根に寄生していた線虫を集め試験に供した。

【００２５】試験液３ｍｌをすり合わせ蓋付の２０ｍｌ容ガラスケース（直径３０×高さ３０ｍｍ）に入れ、上記の大根寄生線虫懸濁液を滴下し、約５０匹を自然に拡散させた。

【００２６】効果の判定は線虫の運動の低減、停止及び死亡による硬直などの経過を実体顕微鏡で観察して結果を表１にまとめた。

【００２７】

【表１】

試験液	殺線虫効果 18時間後	72時間後
原液	80%以上死亡	80%死亡
2倍稀釈液	80%以上死亡	80%以上死亡
10倍稀釈液	運動緩慢	50%以上死亡
20倍稀釈液	運動緩慢	運動緩慢
50倍稀釈液	運動緩慢	運動緩慢
100倍稀釈液	死亡なし	死亡なし
200倍稀釈液	死亡なし	死亡なし
500倍稀釈液	死亡なし	死亡なし
対照	死亡なし	死亡なし

【0028】表から明らかな様に、対照は死亡なしであるのに対し、50倍希釈液以上の濃度の試験液を使用したものは運動緩慢又は50%乃至80%以上死亡した。従って落花生種皮に殺線虫効果が認められ、水抽出物が殺線虫剤として使用しうることが認められた。

【0029】［実施例4］落花生種子を水に浸漬して、種皮と種子を分離し、種皮を風乾後、粉砕したもの1.0gを用いた。水及び親水性有機溶剤を代表するものとしてエタノール及びメタノールを選び抽出試料を調製した。すなわち抽出にはまず、試料1gへ水20mlを加えて0.5時間超音波処理後遠心分離して上清と残渣に分けた。上清を水抽出試験液とした。これを減圧蒸留して乾固した。殺線虫試験は試験液を水で溶かして0.1%水溶液となし、シャーレに5ml入れ、ラブディティス属線虫を約50匹加えて観察した。ラブディティス属線虫はニュートリエントアガー平板上の大腸菌（E.coli）を餌として増殖させたものを試験に供した。

【0030】結果は、水抽出試験液では、160時間後に大部分が死亡した。

【0031】次に前記と同じ種皮風乾粉砕物1.0g、メタノールを20ml加え、混合、撹拌して3回抽出した。抽出液を集めて遠心分離し上清をとり、減圧蒸留して乾固した。これを1%ツイン20水溶液に加えて乳化し、メタノール抽出試験液とした。水に溶かし0.1%水溶液となし、シャーレに5ml入れ、線虫約50匹を加えて観察した。

【0032】結果は、16時間後には約50%が死亡していた。対照として、0.1%及び1%ツイン20水溶＊液で同様に試験した場合、死亡した線虫はなかった。

【0033】以上の結果から、殺線虫力を有する有効成分は水溶液であり、親水性有機溶剤にも抽出されることが認められた。なお線虫数を正確に算定することは困難であるので概数で示した。

【0034】［実施例5］落花生外殻（果皮）を剥した直後の種子100gをビーカーに入れ水100mlに浸漬し、24時間後に、沪紙で沪過し、種子、種皮および浮遊物を除去した液を試験液とした。

【0035】線虫は実施例2で用いたネコブセンチュウ及び実施例4で使用したラブディティス属線虫を試験に供した。

【0036】ネコブセンチュウの場合は試験液3mlを実施例4で用いたものと同じ容器へ入れ、試験線虫懸濁液（2000匹／ml）から100匹をとって加え、実体顕微鏡で観察した。96時間後に全ての線虫の形態が直線状となり、運動を完全に停止した。

【0037】ラブディティス属線虫の場合は、試験液3ml、試験線虫を100匹で試験した。4時間後に運動が緩慢となり120時間後に50%が死亡し、164時間後には90%以上が死亡した。

【0038】

【発明の効果】以上の通り、この発明は、落花生の種皮又はその水、熱水、親水性有機溶剤の抽出物を有効成分とする殺線虫剤であるので、植物への悪影響がなく、土壌中の生態系が破壊されず、安全に使用でき、収穫作物の摂食についても安全である。また種皮は廃棄物として処理されているため、容易に安価に入手でき、廃棄物の

7

有効利用の点できわめて好ましい。

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application] This invention relates to the nematicide and the nematicidal approach of using it for the vegetation which the damage by the nematode generates.
[0002]
[Description of the Prior Art] The conventional technique of a nematicide can be divided roughly into the following two. That is, one is the approach of using agricultural chemicals, and it is the fumigating method by chloropicrin, EDB, etc. Other one is the approach of mitigating damage by crop rotation of an antagonistic plant (volume on agrotechnology compendium soil fertilizer 222 pages). above, everything but two approaches aims at improvement effects, such as effect of the various living things on [in soil], and a physical property, rather than targets only a nematode, for example, has utilization of a compost and chicken droppings (the [Chikaoka and Takezawa:"Kanto Higashiyama pest seminar annual report"] -- 25 collection 127-page 1978 and "plant protection" 44th volume 535 page 1990). Moreover, although it does not carry out, the method of using the microorganism which it is [microorganism] parasitic on a nematode and makes it become extinct is proposed (JP,62-195315,A, JP,62-29506,A).
[0003]
[Problem(s) to be Solved by the Invention] however -- although the conventional technique using agricultural chemicals demonstrates toxicity almost indiscriminately to the living thing in soil and effectiveness is powerful -- the adverse effect to an ecosystem -- large -- an approach dangerous also for an operator -- it is -- just -- being alike -- there is a fault which leads to destruction of earth environment. On the other hand, although the approach by crop rotation is an outstanding approach in consideration of the ecology of vegetation, such as a nematode and agricultural products, its manifestation of effectiveness is indirect in the class of crop rotation crop taking definition, and there is much what has a query in effectiveness. Moreover, the vegetation used for the approach of rotating evasion vegetation has many things used as edible. Thus, the actual condition is that all do not have a satisfactory thing.
[0004] There is no adverse effect to vegetation, and the ecosystem in soil is not destroyed, but the object of this invention can be used for insurance, and is in the point of offering a safe nematicide also about the food intake of a harvest crop.
[0005]
[Means for Solving the Problem] In order to develop a satisfactory nematicide from the actual condition like the above-mentioned, when it looked for the safe crop with the nematicidal force, it found out that a peanut could serve as a suitable nematicide. The component which has the nematicidal force in the testa especially found out existence ****.
[0006] That is, when the seeds which removed the coat (pericarp) of a peanut, the testa, and the testa, and these water extracts were contacted to soil nematoda, respectively, it was accepted in the coat and the seed that the powerful nematicidal force which was not accepted

exists in a testa and its water extract.
[0007] Furthermore, when examination was added, there is nematicidal force also in the hot water extract of a testa, and it turned out that this extract is a component stable with heat. Moreover, although there was almost no nematicidal force in the extract when nonaqueous solubility solvents, such as n-hexane, extracted, in the methanol which is a hydrophilic solvent, ethyl acetate, and an acetone, the nematicidal force appeared and it found out that the extract of a hydrophilic solvent was also possible.
[0008] This invention is a nematicide which makes the testa of a peanut an active principle. Moreover, it is the nematicide which makes an active principle any one or more [of the water extract of the testa of a peanut, a hot water extract, and the hydrophilic organic solvent extract of this testa].
[0009] The vegetation belonging to the ARAKISU (Arachis) group used for this invention contains all the cultivars of the peanut grown in every corner of the earth. If the testa of a peanut says the organization of the shape of a very thin coat which has covered the front face of the seed of a peanut and generally matures, it is presenting brown. In order to obtain this testa, since the testa and the seed are stuck, both must be separated.
[0010] Although a nonhibernating egg hide is sufficient as a testa, it can be immersed in roast, roast or water, or hot water, can collect, and is not limited especially. When a testa can lose adhesion easily by the immersion to water and hot water, roast, or roast, and the force is applied to a testa still more slightly or it merely twists, it is desirable at an easily separable point. In addition, there is no deactivation of the active principle according to heating with the approach [roast and] of roasting. By the approach immersed in water or hot water, an active principle shifts also into water or hot water. An active principle exists immersion fluid also in remaining as it is or the thing which carried out concentration desiccation without deactivating.
[0011] As for most, only a seed is made edible although a peanut also has the form which is inoffensive as edible, with a testa attached. The testa is processed as trash and is in the actual condition which is not dealt with as a useful thing. Therefore, it can obtain easily as a start raw material which manufactures the nematicide of this invention.
[0012] Although the extract containing a peanut testa or an active principle may be used for a field etc. as it is, it is desirable to process to operate orthopedically in a gestalt with easy use, such as a solid-state thru/or a liquid, etc., and to use. In addition, although the testa itself can also be used for the testa of a peanut, it is desirable to carry out grinding etc. in this case. Moreover, that what is necessary is just to make any one or more [of the testa itself, the water extract of a testa, a hot water extract and the hydrophilic organic solvent extract of this testa] into an active principle, even if it combines independent or these, it can use. Moreover, it can also mix with other drugs, and these nematicides can be pharmaceutical-preparation-ized by any one or more approaches of water, adsorption, mixing, a liquid, a solid-state, and fine particles, and can also be used as materials for plantation **** arviculture, paddy rice, horticulture, a golf course, a pasture, for forestry, etc.
[0013] By the practical aspect, especially although the nematicidal approach performed using these materials for plantation **** as the nematicidal approach is suitable, it is not limited. It is desirable to carry out by the approach of merely laying underground into soil at reality, or sprinkling or sprinkling from soil.
[0014] In addition, even if it used this component, there was no effectiveness which becomes extinct to bacteria, mold, yeast, an Actinomyces, etc., and there was no effectiveness of **** (ing) also to microorganisms, such as a paramecium. The **** effectiveness was accepted only to the thing of a nematode of a certain kind.
[0015]
[Function] Since this invention is a nematicide which makes an active principle the extract of the testa of a peanut or its water, hot water, and a hydrophilic organic solvent, there is no

adverse effect to vegetation, and the ecosystem in soil is not destroyed, but it can be used for insurance, and is safe also about the food intake of a harvest crop. Moreover, since the testa is processed as trash, it is desirable also in respect of a deployment of trash.
[0016]
[Example]
The nematicide which carries out solar drying of the peanut from Chiba by which [example 1] harvest was carried out, and makes the testa and a roast testa an active principle was obtained. In addition, the coat and the seed were prepared from the same peanut for the comparison. The nematicidal effectiveness was examined from the soil of the soybean field in Fukui Maruoka to the nematode collected by the bail man method about these.
[0017] First, in 2ml of water, when 80 animals and a nonhibernating egg hide (1/2 seed) were added for this nematode, death began from Ushiro for 1 hour, and 16 hours after, it all died. The same result was brought when similarly tried using the roast testa. Next, 60 animals were put in to 1ml water, said twist also made the testa small, one piece of 5x5mm thing was put in, and it examined by both the samples of raw and roast. As for the nematode near the sample, both samples died after 30 minutes. Four days after the direction of a roast sample all died, and although what is valid a little remained as for the direction of a raw sample, most died. In addition, the nematicidal effectiveness was not accepted about the raw coat (pericarp) and raw seed of a peanut. Moreover, the paramecium of a large number intermingled in nematode suspension also in trial [which] did not die.
[0018] The [example 2] peanut seed was roasted, the testa after radiationnal cooling was exfoliated from the seed, and 5g of testas was collected. After being immersed to 100ml of water, the liquid except a testa was obtained.
[0019] The nematodes for a trial were collected as follows. That is, it went in the tomato field of Shizuoka Prefecture to the especially remarkable field of root-knot nematode damage, the circumference soil of the root of a NEKOBU generating tomato was extracted, and it considered as the large trial soil of a root-knot nematode consistency.
[0020] 3ml of water extracts of the above-mentioned peanut was added to 20g of trial soil, and it mixed, and was left in the room temperature for one month. Contrast changed the above-mentioned extract to 3ml of water, and was performed similarly.
[0021] The judgment of effectiveness collected the nematodes in the soil of an experimental plot and a control plot by the bail man method, diluted them with water, took the constant rate, and observed it with the stereoscopic microscope. The number of root-knot nematodes of **** and both divisions was compared only for the root-knot nematode. The number of nematodes showed the average and standard deviation.
[0022] For the result, the control plot 1975**370 and the experimental plot of the number of nematodes of 20g of soil were 538**199. That is, the number of root-knot nematodes of the experimental plot which added the water extract of a peanut decreased to about 27% of the control plot.
[0023] [Example 3] test fluid was prepared as follows. That is, after being immersed in 100ml of water and putting gently 5g of peanut roast testas used for the example 2 on a room temperature one whole day and night, it filtered through the filter paper and the water extract except a testa was used as an undiluted solution.
[0024] After the nematode washed the stem and root of a Japanese radish in cold water, it was chopped up, was dipped in distilled water one whole day and night, collected the nematodes which were parasitic on the Japanese radish, and presented the trial with them.
[0025] 3ml of test fluid was adjusted each other, it put into 20ml ** glasscase with a lid (diameter 30x height of 30mm), the above-mentioned Japanese radish parasitism nematode suspension was dropped, and about 50 animals were diffused automatically.
[0026] The judgment of effectiveness observed progress of the stiffness by reduction of motion

of a nematode, a halt, and death etc. with the stereoscopic microscope, and summarized the result in a table 1.
[0027]
[A table 1]

殺線虫効果

試験液	１８時間後	７２時間後
原液	８０%以上死亡	８０%死亡
２倍稀釈液	８０%以上死亡	８０%以上死亡
１０倍稀釈液	運動緩慢	５０%以上死亡
２０倍稀釈液	運動緩慢	運動緩慢
５０倍稀釈液	運動緩慢	運動緩慢
１００倍稀釈液	死亡なし	死亡なし
２００倍稀釈液	死亡なし	死亡なし
５００倍稀釈液	死亡なし	死亡なし
対照	死亡なし	死亡なし

[0028] what used the test fluid of the concentration more than a 50 time diluent to contrast having no death so that clearly from a table -- bradykinesia or 50% -- or it died 80% or more. Therefore, the nematicidal effectiveness was accepted in the peanut testa and it was admitted that a water extract could use it as a nematicide.
[0029] The [example 4] peanut seed was immersed in water, the testa and the seed were separated, and 1.0g of things which ground the testa after the air dried was used. Ethanol and a methanol were chosen as a thing representing water and a hydrophilic organic solvent, and the extract sample was prepared. That is, 20ml of water was first added to 1g of samples, sonication Ushiro centrifugal separation was carried out to the extract for 0.5 hours, and it divided into supernatant liquid and residue. Supernatant liquid was used as water extract test fluid. Vacuum distillation of this was carried out and it hardened by drying. The nematicidal trial melted test fluid with water, put it into the water solution, and nothing and a petri dish 5ml 0.1%, and about 50 love DITISU group nematodes were added, and it observed them. A love DITISU group nematode is the Escherichia coli on a neutrient agger plate (E. coli). The trial was presented with what was proliferated as food.
[0030] In the result, most died from water extract test fluid 160 hours after.
[0031] Next, the 1.0g of the same testa air-dried grinding objects as the above and 20ml of methanols were added, and it mixed and stirred and extracted 3 times. Centrifugal separation of the extract was collected and carried out, vacuum distillation of the supernatant liquid was taken and carried out, and it hardened by drying. This was added to twin 20 water solution 1%, and was emulsified, and it considered as methanol extract test fluid. It melted in water, 5ml was put into the water solution, and nothing and a petri dish 0.1%, and about 50 nematodes were added and observed.

[0032] 16 hours after, about 50% of the result had died. When it examined similarly in twin 20 water solution 0.1% and 1% as contrast, there was no nematode which died.
[0033] From the above result, the active principle which has the nematicidal force is a water solution, and having been extracted by the hydrophilic organic solvent was admitted. In addition, since it was difficult, calculating the number of nematodes to accuracy was shown approximately.
[0034] 100g of seeds immediately after removing a [example 5] peanut coat (pericarp) was put into the beaker, and it was immersed in 100ml of water, and it filtered through the filter paper 24 hours after, and the liquid from which a seed, a testa, and suspended matter were removed was used as test fluid.
[0035] The nematode presented the trial with the love DITISU group nematode used in the root-knot nematode and example 4 which were used in the example 2.
[0036] In the case of the root-knot nematode, it put in to the same container as what used 3ml of test fluid in the example 4, and, in addition, it took and observed 100 animals with the stereoscopic microscope from trial nematode suspension (2000 animals/(ml)). The gestalt of all nematodes became straight line-like 96 hours after, and motion was suspended thoroughly.
[0037] In the case of the love DITISU group nematode, 3ml of test fluid and a trial nematode were examined by 100 animals. Motion became slow 4 hours after, 50% died 120 hours after, and, 164 hours after, 90% or more died.
[0038]
[Effect of the Invention] Since it is the nematicide with which this invention makes an active principle the extract of the testa of a peanut or its water, hot water, and a hydrophilic organic solvent as above, there is no adverse effect to vegetation, and the ecosystem in soil is not destroyed, but it can be used for insurance, and is safe also about the food intake of a harvest crop. Moreover, since the testa is processed as trash, it can come to hand cheaply easily and is very desirable in respect of a deployment of trash.

[Translation done.]